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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/629,851	07/30/2003	Tae-eun Kwon	1293.1901	6163

21171 7590 02/12/2007  
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EXAMINER
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CARIASO, ALAN B

ART UNIT	PAPER NUMBER
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2885

SHORTENED STATUTORY PERIOD OF RESPONSE	MAIL DATE	DELIVERY MODE
3 MONTHS	02/12/2007	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

**Office Action Summary**

Application No.

10/629,851

Applicant(s)

KWON, TAE-EUN

Examiner

Alan Cariaso

Art Unit

2885

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 28 November 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-3, 5-7, 9-26 and 28-40 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3, 5-7, 9-13, 17-20, 22-26 and 28-40 is/are rejected.
- 7) ☒ Claim(s) 14-16 and 21 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date 20061128.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Continued Examination Under 37 CFR 1.114*

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on November 28, 2006 has been entered.

### *Priority*

2. Receipt is acknowledged of papers submitted under 35 U.S.C. 119(a)-(d), which papers have been placed of record in the file.

### *Claim Rejections - 35 USC § 102*

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Art Unit: 2885

4. Claims 1-3, 6, 7, 9-11, 23-26, 28, 29, 31-33 and 40 are rejected under 35 U.S.C. 102(b) as being anticipated by MORI (US 4,936,663).

5. MORI '663 discloses an optical guide (1, figs.3-4) which guides light (L) incident therethrough in a lengthwise direction thereof, makes uniform the light in an effective width range of the lengthwise direction and outputs the uniform light (col.4, lines 7-10), the optical guide (1) comprising: a first surface (surface of guide 1 viewed in fig.4) to receive the incident light (L), comprising a plurality of reflective slopes (spiral groove 2 forms plural slopes respective to the first surface) to reflect (col.4, lines 46-48) and make uniform the incident light, each of the reflective slopes (2) having a stripe shape (fig.4) and forming a varying angle (col.4, lines 9-10, narrowing pitch P with distance from light source forming slope portions with increasing angles w.r.t. length of guide 1) with respect to the lengthwise direction of the optical guide (fig.4); and a second surface (non-viewable but behind the viewable surface of guide 1 that at least completes the rod surface), which is opposite to the first surface (fig.4) and is an output surface from which the light reflected from the reflective slopes is output, wherein the respective angles formed by respective lengths of the reflective slopes (2) with respect to the lengthwise direction gradually becomes become larger when moving further from a side of the guide (figs.3-4) onto which the light is incident (L); wherein the plurality of reflective slopes (2) are formed so that an interval (P, fig.3) between the reflective slopes is varied; wherein the interval (P, fig.3) between the reflective slopes (2) gradually becomes smaller (figs.3-4) when moving further from a side of the guide onto which the light is incident (L); further comprising a groove (2) having a triangular structure (fig.4)

Art Unit: 2885

and a stripe shape (fig.4), the groove forming the reflected slopes (2); wherein the plurality of reflective slopes (2) have a uniform width (as it appears in figs.3-4); further comprising a groove (2) on the first surface having a triangular structure (fig.4) and a stripe shape and, the groove forming the reflective slopes; and a slope which connects the reflective slopes to a portion of the first surface along the lengthwise direction and appears to have a width greater (fig.4) than a width of the reflective slopes, which forms an incline with respect to the lengthwise direction; further comprising a side (junction where optic fiber/cable 14 ends and 1a begins in figs.7-8) between the first and second surfaces, the side comprising a groove (1c, fig.7) to receive a source of the incident light; further comprising a cover (9, figs. 7-8) to cover the light source (14); wherein the reflective slopes (2, fig.4) are formed by a plurality of grooves (fig.4) having a triangular cross section and a depth of the grooves (2) increases with decreasing distance from a source of incident light (col.4, lines 10-12); given the structure, wherein it is capable of providing a reflectivity of the optical guide (1) that decreases with decreasing distance from a source of the incident light (L); and given the rod guide (1) has from a front and back surfaces, then it inherently has quadrant third and fourth surfaces between the first (front) and second (back) surfaces, wherein each of the lengths of the slopes (2) extends from the third surface to the fourth surface (fig.4)..

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

Art Unit: 2885

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. Claim 30 is rejected under 35 U.S.C. 103(a) as being unpatentable over MORI (US 4,936,663) in view of MORI (US 4,585,298).

8. MORI '663 discloses the claimed invention except portions of the slopes overlap when projected on an axis in the lengthwise direction of the optical guide. MORI '298 teaches light diffusing or reflecting spiral patterns (20, fig.4) or spiral grooves (20', fig.7) that overlap adjacent patterns or grooves on the same face side for the purpose of radiating light from the conducting member with selective quantity distribution (col.1, lines 52-65) and one selected distribution in fig.3. It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the light guide device of MORI '663 to include the type of overlapping portions as taught by MORI '298 in order to select a quantity distribution of light in the longitudinal direction of the light guide that would include at least even light quantities with distance away from the light source avoiding any gaps where distribution may vary less.

9. Claims 12, 13, 17-20, 22 and 34-39 are rejected under 35 U.S.C. 103(a) as being unpatentable over YOKOMORI et al (US 6,738,588 B2) in view of REDMOND et al (US 5,664,862).

10. YOKOMORI discloses an image forming apparatus (101, fig.1-6), comprising: a photoreceptor (drum 1); and an eraser (cleaning device 10) to initialize a surface potential of the photoreceptor (col.4, lines 15-17), the eraser (10) comprising an optical

Art Unit: 2885

guide (201, col.6, lines 63-66, fig.7-8) comprising: a first surface (202) to receive incident light, comprising a plurality of parallel reflective slopes (col.8, lines 1-27, "V-shaped notch 202") to reflect and make uniform the incident light, respective lengths of the reflective slopes (being the length of either or both V-sides of notch 202 that extend as the slopes) defining angles with respect to a lengthwise direction of the optical guide, and a second surface, opposite the first surface, being an output surface from which the light reflected from the reflective slopes is output; further comprising a single LED (301, fig.7) to emit the incident light (c); wherein the LED (301) is between the first (202) and second surfaces (D); a transfer device (fig.6) to radiate light on a surface of the photoreceptor (1), the transfer device comprising the optical guide (201); further comprising a groove (202) having a triangular structure ("V-shaped notch 202") and a stripe shape (fig.8).

11. However, YOKOMORI does not disclose: the lengths of the slopes forming a varying angle with respect to the lengthwise direction of the optical guide (claims 12, 18, 34, 37); and an interval between the plural reflective slope being varied (claim 13).

REDMOND teaches the inclination and spacing of facets (38,39, figs.2,3 & 9) that form reflective notches being varied (col.4, lines 40-53) with respect planar surface (35), i.e. w.r.t. the lengthwise direction of the optical guide (32) for the purpose of providing uniform distribution of light across the planar surface (35). It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the light guide device of YOKOMORI et al to include the type of variation in inclination and spacing of the notch facets as taught by REDMOND et al in order to provide uniform

Art Unit: 2885

distribution of light across the output surface, providing some flexibility or variation in forming the angles.

***Allowable Subject Matter***

12. Claims 14-16 and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

***Conclusion***

13. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. YAMAMOTO et al (US 6,601,984 B2), MURASE et al (US 5,915,855) and ABE et al (US 5,857,761) show optical light rods or guides with various spaced patterns that extract light therefrom. VASILATOS (US 3,535,018) shows varying lengths of light extracting openings on the length of a fiber cable. CIBIE (US 4,432,039) and EGAWA (US 6,607,297 B2) show light guide rods with angular positioned strip reflecting slopes. MEZEI et al (US 6,910,783 B2) show varying angular positions across the length of the light guide (fig.11-13).

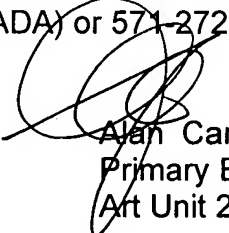
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alan Cariaso whose telephone number is (571) 272-2366. The examiner can normally be reached on 9-5:30 M-F.



Art Unit: 2885

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, James Lee can be reached on (571) 272-7044. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Alan Cariaso  
Primary Examiner  
Art Unit 2885

February 5, 2007

AC